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LT. COL. ILIA TOLSTOY

CHOSEN AT BIRTH TO RULE TIBET, THE YOUNG DALAI LAMA SEEMS TO SHOW THE CARES OF OFFICE

Affairs of church and state are managed by a regent until he comes of age. This picture was taken during the war when the Dalai Lama was 10 years old. At the time, the United States made the first official contact with "forbidden" Tibet, nominally a dependency of China (Bulletin No. 1).

Bulletin No. 1, January 12, 1948

Isolated Tibet Closes Doors to Outsiders

READINGS of the stars have convinced official astrologers of the Dalai Lama (illustration, cover) that the boy priest-king of Tibet is in grave danger from "foreigners." Consequently the borders of the "forbidden land" between India and China will be closed until 1950, reports say.

Mountain-ringed Tibet, perennial recluse among nations, lost some of its prized isolation during the war when it became a path for a trickle of supplies bound for China. Except during this brief period, the country's closed-door policy has kept most strangers away.

Tibetans Live Alone and Like It

Almost twice as big as Texas, and home of herders, farmers, priests, and bandits, Tibet is the core of a wild and harsh region, in itself a "no trespassing" sign. On the south is the towering barrier of the Himalayas, which discourages contact with India's millions, and blocks off the barren plateau from the monsoon rains. Eastward into China stretch the soaring peaks of the Kunlun ranges. On the north and west are bleak desert plateaus and mountains.

Tibetans live alone and like it. They have no railways and few roads. Ruled by religion, their country remains one of the world's unchanged lands. They dismiss the riddle of their origin and ancestry with fairy tales and legends. However, color and features seem to relate them to the Mongols. American explorers say the natives resemble American Indians.

Population estimates range from 700,000 to 6,000,000, with 3,000,000 as probably the best guess. Nearly every family in Tibet is believed to have at least one son who is a lama, novice, or priest of Tibetan Buddhism. The priests, possibly one-seventh of the population, live in lamaseries, and are supported by the people. Tibetans believe that ghosts and devils will meddle in their affairs unless appeased by a lama.

Lhasa, mountain-girt capital, is magnificently situated. Up to the time of World War II, most white men who saw it did so in disguise. Opened to foreigners in 1904 by a British mission, it is still as fabulous as any city of "make believe." In 1942, Lieutenant Colonel Ilia Tolstoy journeyed from India to China to discover routes for transporting war supplies. The illustrated story of his experiences appeared in the August, 1946, issue of the *National Geographic Magazine*.

Dalai Lama Rules Through Regent

The Potala, a huge structure dominating the flat roofs of the town, was begun a few years after the Pilgrims landed at Plymouth Rock. This lofty mass of buildings is a real-life Shangri-la that outdoes the imagination. Partly monastery, partly palace, partly fortress, it rises from a rocky ridge upthrust in the center of an eye-filling valley.

From the Potala the Dalai Lama rules as a "Living Buddha." Tibetans regard him as the fourteenth reincarnation of their first leader. He was born in the exact hour of his predecessor's death, when the spirit of

ENTERED AS SECOND-CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
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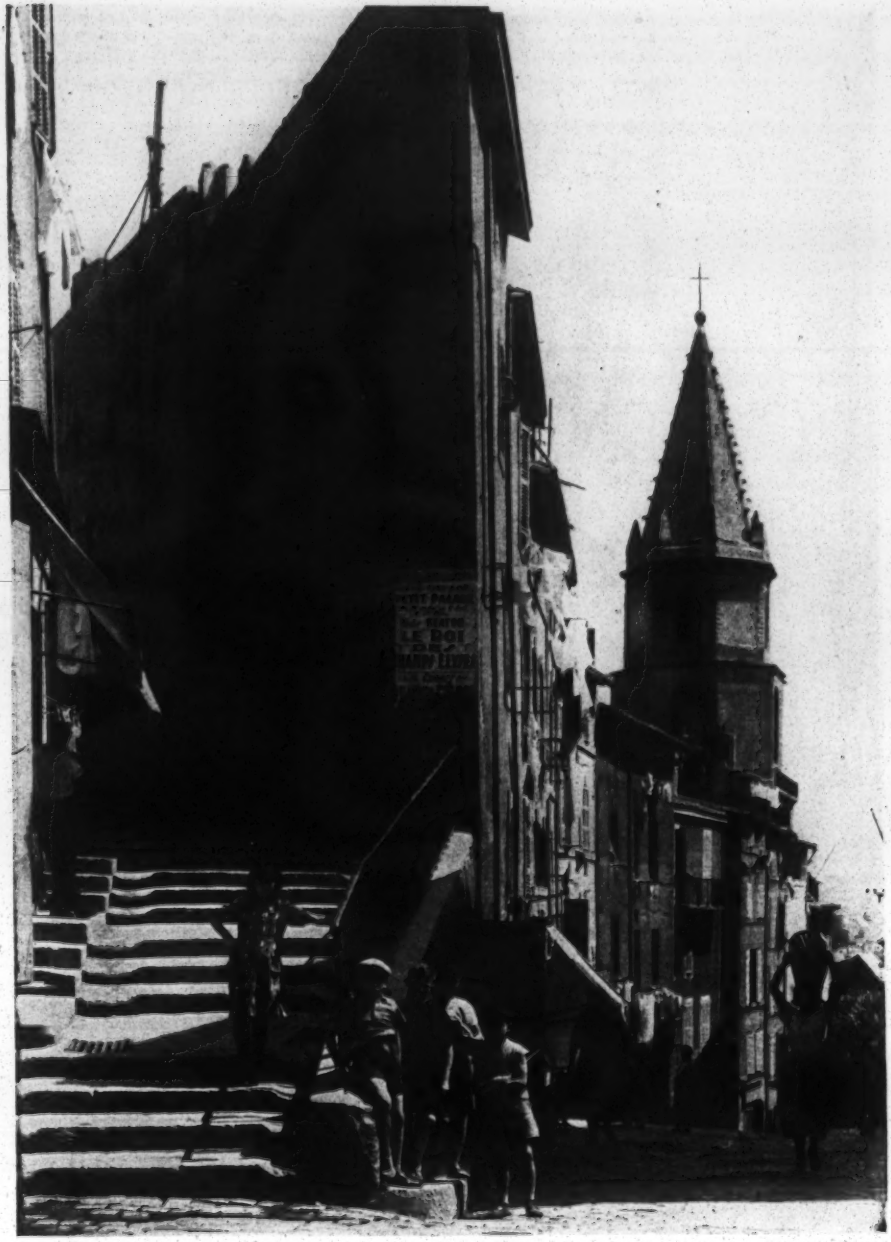

W. ROBERT MOORE

SOUVENIR OF PEACETIME IS THIS SCENE IN MARSEILLE'S OLD-TOWN STREETS

Where a steeply rising street meets a stairstep alley leading to the highest point of Marseille's Old Town, a building wedged into flatiron shape serves as a billboard to advertise an American movie. This peaceful spot, where once children played on the rough stone pavement in the shadow of the family laundry, flapping from upper windows, has vanished as part of the toll of war. Gone are the climbing buildings and the 18th century church with its octagonal belfry—demolished by the Germans to make way for guns to defend their occupation of Marseille harbor (Bulletin No. 5).

Bulletin No. 2, January 12, 1948

Commerce Rivals History in Cochin, India

THE ancient city of Cochin, on the Malabar coast near the southern tip of India, is developing its heritage as an important port amid memories of a strange history. The community which the Portuguese explorers Vasco da Gama and Affonso de Albuquerque visited nearly four and a half centuries ago is now the chief shipping center between Bombay, India, and Colombo, Ceylon.

Long an outlet for its productive hinterland, including the Madras Native States of Cochin and Travancore and southern Madras Presidency, Cochin shook old fetters less than two decades ago with the deep dredging of a bar at its harbor entrance. The city lies within the bounds of the new Hindu Dominion of India.

Coconut Fiber Makes Coir Industry

Cochin stretches for a mile along the south point of land at the entrance to an extensive natural waterway deep enough for large vessels. On the north point of the entrance is a settlement called Vypin. Two miles across the harbor on the east shore is the city of Ernakulam. The three form a port community approximating 100,000 residents.

In the harbor, seagoing and coastwise vessels load with rice and coconut products, tea, coffee, rubber, peanuts, cotton, spices, and hardwoods. Cochin factories extract coir (illustration, next page), the fiber of coconut husks, and twist it into rope or weave it into mats. Black chimneys of the Tata Oil Mills rise above the palm trees of the Cochin coast.

In British Cochin, as part of the city was known before Great Britain renounced its empire in India, stand houses recalling the era when the Dutch held the town, from 1663 to 1795. The Portuguese had occupied Cochin earlier. Da Gama built a factory there in 1502, and Albuquerque chose the site for the first European fort in India. Vasco da Gama died at Cochin on Christmas Eve, 1524.

One of Cochin's distinguishing features is a dwindling colony of Jews, remnants of 10,000 refugees who fled from Roman oppression in Palestine 1,900 years ago.

First Jewish King Outside Holy Land

In a separate section of the community the descendants of the Palestine pilgrims have lived since the 14th century. They were granted the site for their colony by a friendly Maharajah of Cochin, who allowed them to build their synagogue beside his own temple. They moved at that time from their kingdom of Anjuvannum, 20 miles north on the Malabar coast.

In their synagogue they retain many relics of their long stay in India. Most treasured are copper plates by whose inscription a maharajah of A.D. 379 ceded lands for Anjuvannum to the leader of the group, establishing him as the first Jewish king outside the Holy Land.

Many of the colonists intermarried with Indians. The descendants of those who did not intermarry are the White Jews of Cochin, now reported as narrowed to a few families—barely 100 people.

Buddha passed to him. He makes known his will through a minister or regent appointed from among the chief lamas. To Tibetans, their religion is Lamaism, not Buddhism.

The interior of the Potala is chiefly a network of dark passages and cells, many halls and flights of steps. Notable are the fine bells, gold, silver, and copper images of Buddha, and golden lamps which burn the butterfat of yaks.

Tibet is a land of few wives, many husbands. A woman may have several husbands who divide the responsibilities of caring for the home in the valley, tending yaks or sheep in the uplands, and trading by caravan.

Barley and other grains grow in Tibetan soil. Peaches and grapes are among the fruits. Domestic animals include sheep, yaks, and pigs. The people spin, weave and knit wool (illustration, below), and make images and decorations for religious use.

Minerals commercially worked include salt, borax, and gold. Trade with China and across the Indian frontier is important to Tibet. Passes between India and Tibet touch 18,000-foot level.

NOTE: Tibet may be located on the National Geographic Society's map of Asia and Adjacent Areas. Write the Society's headquarters, Washington 6, D. C. for price list of maps.

For additional information, see "Across Tibet and India to China," in the *National Geographic Magazine* for August, 1946; and "With the Devil Dancers of China and Tibet," July, 1931.

LT. COL. ILIA TOLSTOY

ON A LARGE TIBETAN ESTATE, THIS 13-YEAR-OLD BOY WEAVES WOOL RUGS FOR HIS KEEP

Bulletin No. 3, January 12, 1948

Engineers Improve Transportation in 1947

ENGINEERS in 1947 undertook the gigantic task of providing the world with more and better transportation facilities.

Aviation engineering continued its spectacular progress. Twice the world speed record was broken by planes approaching the swiftness of sound. The world's largest plane, the Hughes flying boat, made its trial flight, as did the largest land plane, Consolidated Vultee's XC 99.

Other aviation achievements included a ram jet-powered helicopter, jet-powered bombers of conventional and flying-wing designs, and large planes with swept-back wing designs.

Sydney to Have Australia's Largest Airport

New airfields include three being built across the northern rim of North America by Canada and the United States. Baltimore and Chicago began new airports. Wilkes-Barre and Scranton, Pennsylvania, claim for their new joint field a greater area than New York's La Guardia.

Australia is spending some $40,000,000 to make Kingsford-Smith Airport near Sydney the largest on the continent. England is developing a huge protected area for flying boats—an artificial lagoon along the Thames at Cliffe, 25 miles from London.

China has begun an 1,800-mile railroad between Lanchow and Kwangchowan. Among Soviet lines begun is a 2,500-mile trunk line across south Siberia. Extensive additions are being made to the Trans-Kazakhstan trunk line.

New tunnels shorten other rail routes. Yugoslavia tunneled through the Bosnian Mountains; an eight-mile short cut is being bored under the Hex River in South Africa. A mile-and-a-quarter tunnel through the Rockies cuts rail mileage between Altamont and Aspen, Wyoming.

New water tunnels for irrigation and water power are even longer. The Colorado River now pours water through a 13-mile tunnel at Estes Park, Colorado. Baltimore is constructing a seven-mile cut, and Sweden a shorter bore in Angermanland Province.

New Bridges Unite Many Road Ends

England is experimenting with the first moving-span bridge of aluminum—half the weight of steel. A project to span England's Severn with the world's third-largest suspension bridge remains in blueprints. Near Harpers Ferry, West Virginia (illustration, next page), a new bridge across the Potomac connects Maryland and Virginia. Brazil and Argentina have a new joint bridge across the Uruguay River.

Many bridges are also involved in road construction and improvements now under way in the United States, totaling nearly 50,000 miles. Notable is an eight-lane highway between Elizabeth and Newark, New Jersey.

Postwar trade is requiring better harbor facilities, with resultant improvements at many ports. Saudi Arabia is building a new port at Dammam on the Persian Gulf. Peru recently dedicated a new $4,000,000 harbor at Matarani. Maastricht, Netherlands port on the Maas (Meuse)

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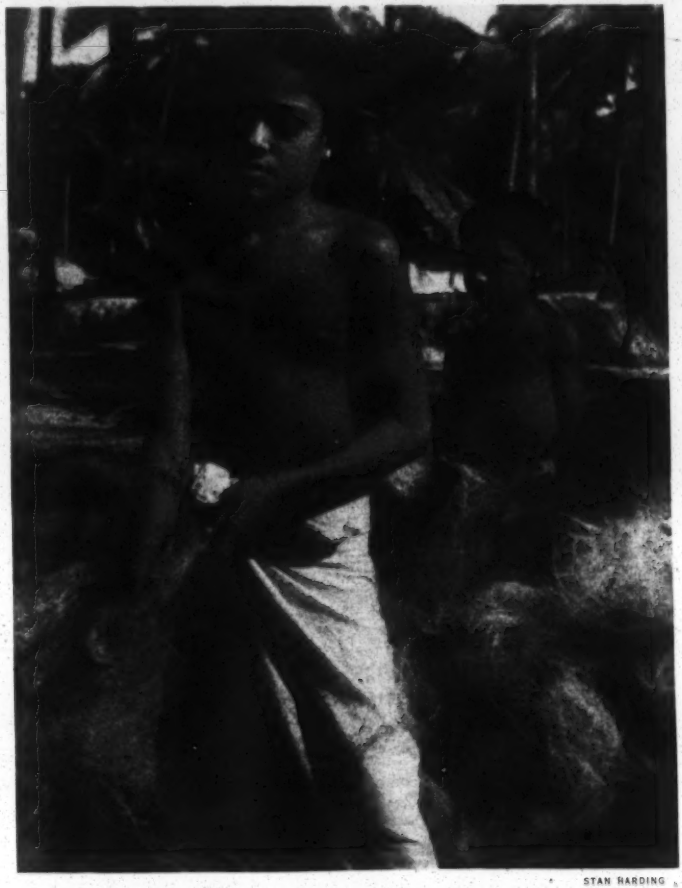
The Madras Native State of Cochin, at the southwestern tip of which the port community lies, is one of the most densely populated areas in the world. Slightly larger than Rhode Island, it counts more than 800 people to the square mile, despite 5,000-foot peaks of the Western Ghats in its eastern portion. Population for its cultivated land is close to 1,600 per square mile.

NOTE: Cochin appears on the National Geographic Society's map of India and Burma.

For additional information, see "India Mosaic" and "India's Treasure Helped the Allies," in the *National Geographic Magazine* for April, 1946; and "India—Yesterday, Today, and Tomorrow," October, 1943.* *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00)*

See also, in the GEOGRAPHIC SCHOOL BULLETINS, January 20, 1947, "India's Travancore Has Atomic Material"; and "British Independence Offer Airs India's Complex Problems," April 14, 1946.



STAN HARDING

ALONG THE MALABAR COAST INDIAN CHILDREN PREPARE COIR FOR MARKET

The shredded fiber from coconut husks, coir finds use in matting and rope—especially in the thick "bumpers" seen on tugs and other small boats. It is shipped to Cochin from many points along India's southwest coast and there processed and distributed to world markets.

Bulletin No. 4, January 12, 1948

Pigeon Post Is Holdover from the Ancients

EVER since Noah's dove came back to the Ark with an olive branch, birds have been distributing news. Feathered postmen have carried "pigeongrams" in peace and war, over land and sea.

How does a pigeon find its way home? Remarkable memory and keen eyesight were long suggested. Recent experiments indicate that pigeons and migratory birds have a magnetic sense and are guided by the earth's magnetism and by the ability to detect the earth's spin (which varies with latitude). This theory would explain the pigeon's ability to fly unerringly over strange land, through continuous clouds, and over oceans.

Must Be Descended from Homers

Why the pigeon flies home is adequately explained by its homing instinct—an inherited trait. Like its human trainers, the pigeon is attached to its home and likes to be there at the end of the day. There waits its favorite food and its mate.

Three things are essential in the making of a successful homer. The bird must be the offspring of pigeons with known homing ability; it must be healthy; and it must be trained. Homers may be of either sex.

Training begins when the bird is four weeks old and must be continued through its career as a courier. With good health, a pigeon may be on active service for as much as seven years.

As soon as the young pigeon can fly, it is taken in a basket to a point some distance from its home loft. Distance is increased until the bird can fly 100 miles. When it reaches its home, the trainer gives the bird its favorite grain and encourages it to come inside quickly.

Occasionally a pigeon will show such ability that it can be trained to do 500 miles instead of 100 in its first year. As it grows older, it flies farther. A thousand miles is usual, although one bird flew from Indochina to France, a distance of 7,200 miles.

First Joined the U. S. Army in 1878

Pigeons have been trained to carry messages since the ancient Greeks sent back the names of the victors in Olympic games to their home cities by pigeon post. It is historic knowledge that pigeons were used in war as early as 43 B.C. In that year the Roman consuls sent messages by them to Brutus, besieged by Mark Antony at Modena. During the Siege of Paris in the Franco-Prussian War (1870-71), pigeons carried 150,000 official messages and a million private ones into the beleaguered city.

Pigeons were not used in the United States Army until 1878, when they were tried out in Indian fighting in the Dakotas. Due to the presence of hawks, and the absence of experienced trainers, the result of this addition to the military forces was not a great success.

The Army had no organized pigeon service until 1917. Several became heroes of World War I. One pigeon, although wounded in the line of duty, brought news of the plight of the "Lost Battalion." Another was awarded the Distinguished Service Cross and the Croix de Guerre for heroic service. It lived to be 21. A German bird captured in the Meuse offensive in 1918

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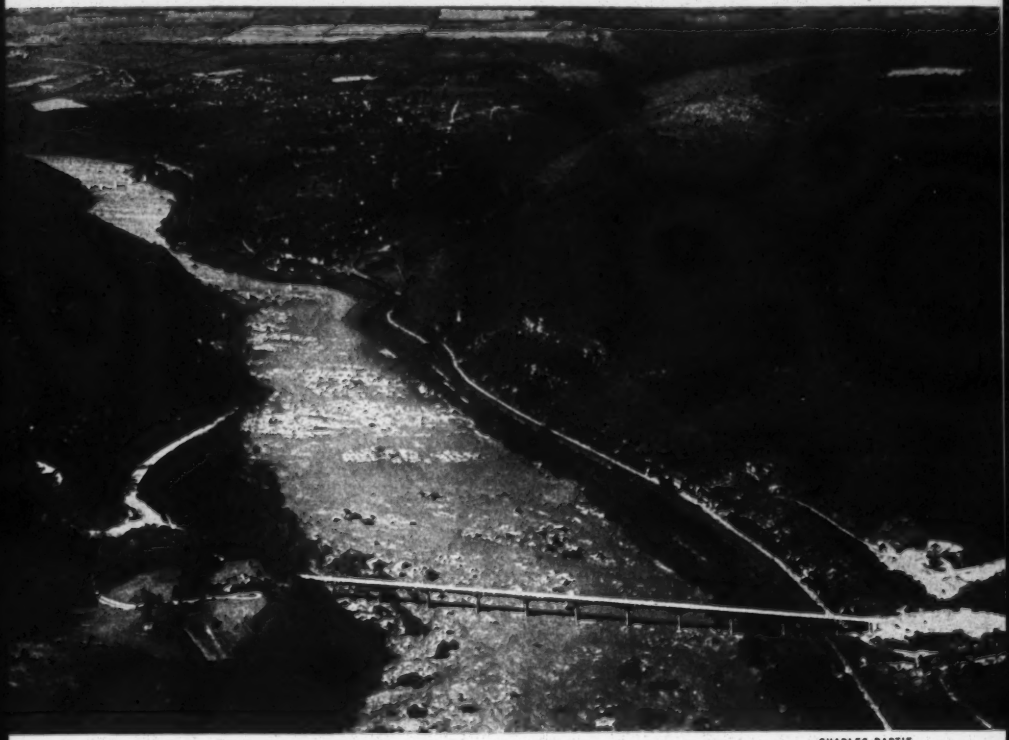
River, has been enlarged. The Soviet Union is rebuilding the all-weather Latvia port of Riga, about 600 rail-miles west from Moscow.

Unique among Soviet power developments is the Ozernaya station on the Zanga River in the Armenian S. S. R.; it is 200 feet underground. Last year Scotland began harnessing 6,000,000 kilowatts of potential power in the Highlands. Other hydroelectric power plants are rising on the Snake River in Idaho, and in Morocco, Finland, France, Mexico, and Venezuela.

Rebuilding of bridges and locks has put Belgium's Albert Canal in operation again and war damage to Greece's Corinth Canal also is being repaired. Hungary's Sió Canal will join Lake Balaton and the Danube.

Saudi Arabia's $100,000,000 oil pipeline indicates the contribution of this system to transport. It will carry 300,000 to 400,000 barrels a day. The 1,000-mile pipe, 30 inches in diameter, will run from oil fields at Dharan to the Mediterranean. A 30-inch pipe is used in the last 200 miles of the 1,200-mile line to carry natural gas to southern California from fields in New Mexico and west Texas.

NOTE: For additional information on 1947 engineering projects, see "New Port at Matarani Is Southern Peru Gateway," in the GEOGRAPHIC SCHOOL BULLETINS, January 5, 1948; "Hungarian, Greek Canals Improve Transport," December 1, 1947; and "Oil Line May Revive Sidon's Ancient Trade," October 27, 1947.



CHARLES RAPTIS

AMONG 1947'S MANY ENGINEERING ACHIEVEMENTS IS THIS STATELY POTOMAC RIVER SPAN

The Potomac flows over Shenandoah Falls (upper right) before joining the Shenandoah River. On the hilly point stands Harpers Ferry, West Virginia, which will be by-passed when the new bridge is connected by highway with a span to be built on the piers across the Shenandoah (upper left).

Bulletin No. 5, January 12, 1948

France's Trade Again Moves at Marseille

MARSEILLE'S wide water acres, which give the Mediterranean city France's largest port area, are again swinging back into normal activity after the varied misfortunes of war and postwar years.

Dock laborers and sailors, whose recently ended strike paralyzed the port for a month, have gone back to work. The city is beginning to resume its bustling peacetime aspect.

The docks of Marseille, where a maritime workers' strike helped lead to French cabinet reorganization, have made the cosmopolitan port the busiest on the Mediterranean. Ships of every nation to an average of 50 a day normally steam in and out of the harbor.

Germans Razed the Old Town

French colonization in North Africa and the opening of the Suez Canal developed Marseille as France's second-largest city and its chief sea gateway. Recent estimates give Marseille about 610,000 inhabitants—representing a population loss of about 30 per cent of the prewar figure.

World War II, which destroyed three-fourths of France's harbor facilities, did a thorough job at Marseille. But by early 1947, only Marseille and less-damaged Le Havre—of all French ports—were reported in condition to approach prewar trade volume.

Marseille's portside Old Town was the site of ancient Greek Massalia, from which the modern city takes its name. Late in January, 1943, the occupying Germans cleared the 40,000 dwellers out of the Old Town. Then they leveled the historic area with dynamite to clear space for coast defense guns and to demolish the labyrinth of narrow, hilly streets (illustration, inside cover) which provided a refuge for members of the French Underground. When the Allied armies approached the city in August, 1944, the Germans completed demolition of the port.

Marseille's Old Town bore a strong resemblance to many Italian ports. A large percentage of the inhabitants were of Italian descent. Along the ancient, twisting streets mingled many races and colors—brown-skinned Algerians and Moroccans from France's North Africa lands, yellow-hued Annamites from French Indochina, Greeks, Spaniards, and Senegalese from French West Africa.

Port More than Seven Times Original Size

Visitors to Marseille saw a medley of people and sampled strange sea foods raw at open-air stalls. In waterfront restaurants they tasted bouillabaisse, the highly seasoned fish chowder for which France's Mediterranean towns are famous.

The original port of Marseille is a well-sheltered, 70-acre inlet. As trade volume increased, jetties were built and some 500 acres of deep anchorage were developed. The Rove (illustration, next page), a four-and-a-half-mile tunnel, was bored through a rocky hill northwest of the city. It provided a route for small craft to docks on the big Berre salt lagoon, and completed a shortcut from the Mediterranean to Rhone River waterways.

The passing parade of raw materials from the Far East, South

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lived even longer (illustration, below). The normal life span of a pigeon is from five to eight years.

Rapid troop movement in World War II required a change in training methods. As pigeons could not have permanent home lofts, they had to be trained to come home to movable ones. Jeeps pulled trailers with apartments for as many as 50 birds. When the birds were able to fly, they were released just at dusk, unfed. Hunger and approaching darkness kept them from flying far. They did, however, have a chance to look over the surrounding country. The mobile lofts were moved every day, at first not more than a mile; after a few days, up to five miles.

Only a severe storm hampers a pigeon going about its duties, as their feathers have a protective coating called "bloom" or "milt." They also can stand a great deal of cold. Flown to a height of 35,000 feet in experimental flights, they merely ruffle up their feathers for extra warmth in the 45-degree-below-zero temperature, and take it without oxygen masks which their human companions require at such an altitude.

Pigeons became paratroopers. They were parachuted from planes in cylindrical containers. By using pigeons for communications, advance units could operate without radio which would reveal position to the enemy.

Pigeons served in the Navy; birds brought up to fly only over water carried shore-to-ship messages; land-trained birds reversed the order.

NOTE: For additional information, see "The Flying Telegraph," in the *National Geographic Magazine* for April, 1947; and "Man's Feathered Friends of Longest Standing," January, 1926.

OFFICIAL U. S. ARMY SIGNAL CORPS

AMERICA'S OLDEST-KNOWN PIGEON PROUDLY POSES WITH HIS FAMILY

"Stationed" at Fort Monmouth, New Jersey, since his capture during World War I, the Kaiser (left), famous homing pigeon, has become a true American citizen. His offspring are reared to fly for the U. S. Army. With him is Lady Belle, his mate, and two recent children. A trained messenger when captured, more than 30 years ago, he has broken all known pigeon age records.

America, and France's African colonies naturally caused industries to spring up in the new port. Marseille took to refining sugar and petroleum, to smelting iron and other metals, to processing food, to making machinery, textiles, chemicals, soap, and leather goods. Crowded warehouses and busy shipping offices sprang up to deal with imports and exports.

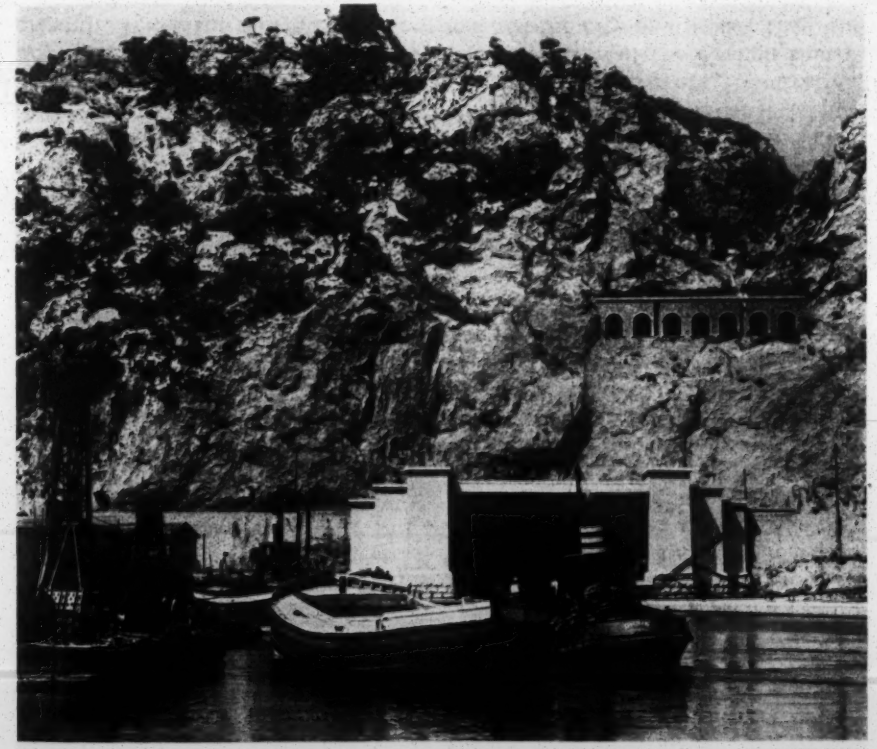
Back from the timeworn buildings and narrow streets where the port industry settled run promenades with public buildings and fine homes. Famous are the tree-lined Prado and the Canebière which leads inland to the city's mountain backdrop. The scenic Corniche Road follows the coast southeastward. In places, it is hewn from solid rock.

Offshore from the Corniche Road lie the Frioul Islands. The smallest of these holds Chateau d'If, made famous by Dumas in "The Count of Monte Cristo."

Because soldiers of Marseille, marching into Paris to take part in the attack on the Tuileries in 1792, sang Rouget de Lisle's battle song with such spirit and vigor, it became known as the "Marseillaise."

NOTE: Marseille is shown on the Society's map of Europe and the Near East.

For further information, see "Marseille, Battle Port of Centuries," in the *National Geographic Magazine* for October, 1944.



W. ROBERT MOORE

THROUGH MARSEILLE'S ROCKY CLIFFS TRANSPORTATION RUNS IN LAYERS BY TRAIN AND BOAT

Postwar restoration at Marseille involved removal of small boats, stone laden, which the Germans sank at the mouth of the Rove Tunnel. Extensive repairs were also necessary at the land exit beyond the hill, which the Germans blew up. Arches of a railroad tunnel show above the marine tunnel arch.